APPENDIX A

The specification is amended as follows:

The paragraph bridging pages 5-6 is amended as follows:

[In general, the p-doping may be accomplished using _____, while the n-doping may be accomplished using _____, and the p++ doped pinned region 220 may be formed by _____.] Note that the transfer gate 206 is disposed between the photoreceptor 204 and the sense node 208 in order to transfer charge between the photoreceptor 204 and the sense node 208. Note also that the transfer gate 206 includes a transistor gate structure (i.e., the photoreceptor readout gate 216). As explained in more detail below, the imager cell 200 sets up a potential well profile that allows charge to transfer through the transfer gate 206 depending on photoreceptor control clocks.

On page 6, the paragraph beginning on line 8 is amended as follows:

The operation of the imager cell 200 in low-light mode is now discussed with reference to the potential well diagram 214 and the photoreceptor control clock 228. Note that the photoreceptor control clock 228 varies between a V- level during an integration period 230 and a V+ level during a readout period 232. The duration of the integration period 230 and the readout period 232 vary in accordance with the desired operating speed of the imager cell 200. [In one implementation, for example, the duration of the integration period 230 is approximately _____, while the duration of the readout period 232 is approximately _____.]

On page 6, the paragraph beginning on line 16 is amended as follows:

Note first that the photoreceptor 204 establishes the photoreceptor potential well 234 in the substrate 202 and that the sense node 208 establishes a sense node potential well 236 for ultimately holding the charge accumulated in the charge collection well 234. During the integration period 230, the integration voltage V- establishes the integration potential well 238 in the substrate 202. At this time, photons incident on the photoreceptor 202 produce electrons that are captured in the [integration] photoreceptor potential well 234 and constrained by the [photoreceptor] integration potential well 238.

On page 7, the paragraph beginning on line 18 is amended as follows:

In particular, the controller 302 may by constructed with circuitry that implements a high-light mode of operation providing charge accumulation in a photoreceptor potential well and a readout potential well, a Snap mode of operation that simultaneously transfers accumulated charge for a set of imager cells to sense nodes, and a low-light operating mode that provides charge accumulation in the photoreceptor potential well (as constrained by an integration potential well during an integration period). [as _____. **JIM - INSERT MORE DETAIL ON HOW THE CONTROLLER IS IMPLEMENTED - IS IT A PROCESSOR CORE, OR ALL CUSTOM LOGIC?]**

The paragraph bridging pages 7 and 8 is amended as follows:

Typically, the controller 302 operates the imager 300 in the low-light mode. In the low-light mode, the controller 302 asserts the photoreceptor control clock 228 as noted above. In particular, the controller 302 asserts a photoreceptor control clock with an integration period 224 and a readout period 222. Thus, the photoreceptor potential

well 234 provides the charge capacity to accumulate electrons produced by incident photons. The charge capacity is generally sufficient for imaging in low-light levels. In other words, the controller 302 selects the low-light mode when the controller 302 determines (or is explicitly commanded by an operator through input keys) that the measured, predicted, or modeled quantum efficiency and charge capacity of the [charge collection] photoreceptor potential well 234 will not be overwhelmed by electrons generated based on current lighting conditions.

The paragraph on page 9, beginning at line 10, is amended as follows:

Thus, in the high-light mode, a greater charge capacity exists in the substrate 202. As a result, when the controller 302 selects the high-light mode based on the measured, predicted, or modeled quantum efficiency and charge capacity of the [charge] photoreceptor potential well 234 (or when the controller 302 is explicitly commanded by an operator through input keys), the imager cell 200 provides a charge capacity that can capture an amount of electrons that might otherwise overwhelm the low-light photoreceptor potential well 234 as constrained by the integration potential well 238.